



Michael E. Scott (December 10, 2015)
Department of Environmental Quality
Planning & Response to Highly Pathogenic
Avian Influenza (Environmental Considerations)



HPAI – Environmental Considerations

- DEQ Timeline
- DEQ / NCDA Minnesota trip highlights
- DEQ Guidance: Decon, Composting & Burial
- DEQ Response Efforts



DEQ Highly Pathogenic Avian Influenza (HPAI) Task Force

- June 2015- Initial meetings regarding HPAI
- June 2015- HPAI task force established with representatives from DWM, DWR, DAQ, DEMLR
- July 2015- Joint DEQ and NCDA trip to Willmar, Minnesota
- August 2015- DEQ HPAI recommendations submitted to NCDA
- August 2015- DEQ portal site developed on the homepage for Avian Flu
- September – December 2015- DEQ regional office HPAI teams identified, PPE acquisition and joint agency training conducted



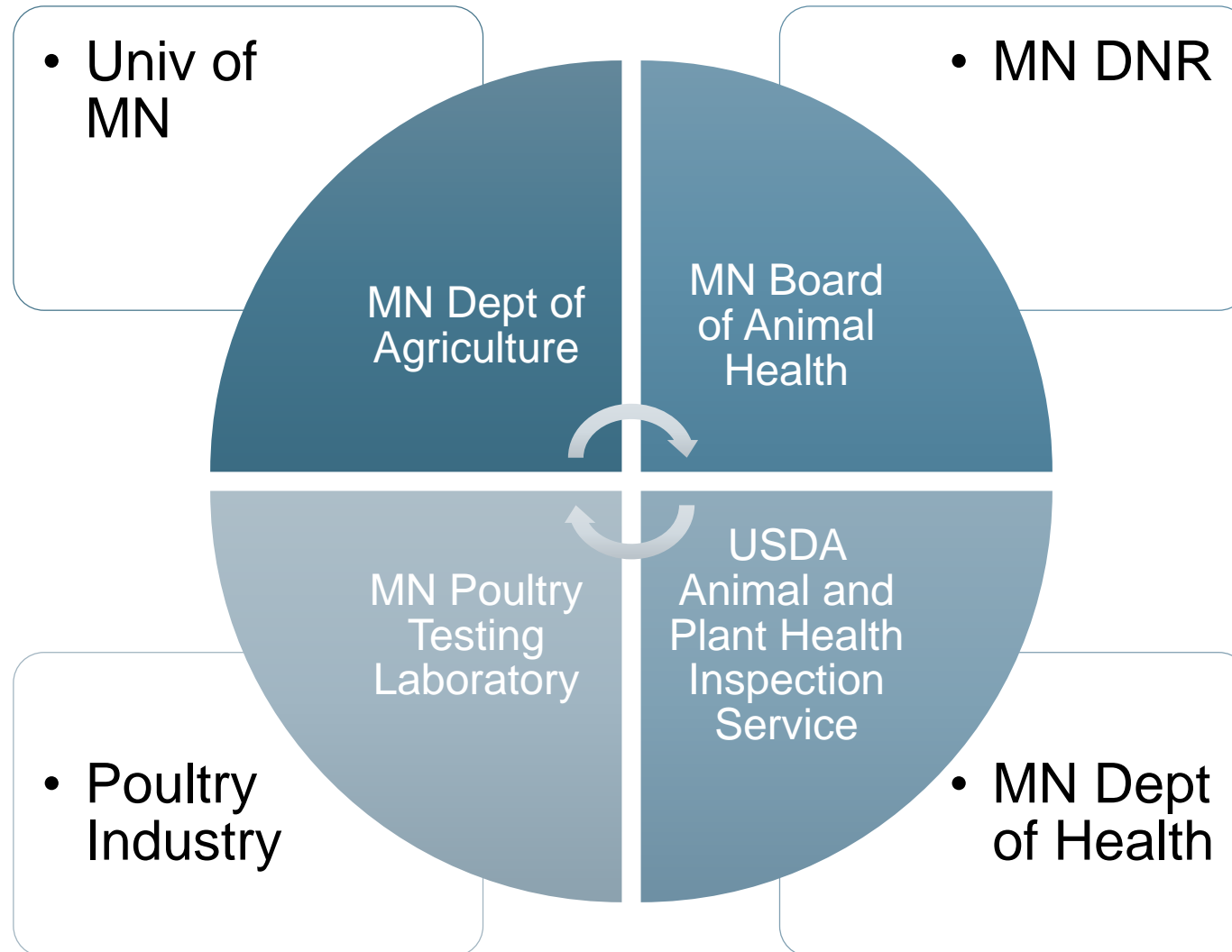
Trip Objective

To obtain on site experience with mortality management of highly pathogenic avian influenza

- July 15-17, 2015
- Willmar, Minnesota (farm locations)
- DEQ and NCDA staff
- Met with Minnesota Incident Command, USDA, and a producer



Minnesota collaborative effort



Depopulation and Composting at MN Layer Operation

- 16 - 54' x 608' barns with five tiers of cages,
=125,750 birds per house
- Up to 400 workers during depop
- Subject matter experts handled compost
recipes and initially monitored piles
- 1,500 round bales, cornstalks, wood chips
and sawdust were used as carbon sources
- \$1.4 M cost of composting
- 18 outdoor compost windrows



MN – Depopulation

- 50,000 gallons of water was used for one poultry house (water resource needs)
- MN was limited at times by available water supply
- Issues at layer operations
 - Personnel needed
 - Time to depop vs. mortality rates
- Virtually no water runoff from depopulation events



MN – Decontamination Specifics

- Virkon was utilized
- Containment of decon water?
- Monitoring?



Iowa HPAI Lessons Learned

- Multiple disposal options were utilized: composting, burial, landfilling, incineration
- Transport: Bird carcasses were moved off site in 25 yd. roll offs covered with tarps. Each had a biozip bag, with absorbent layer in the biozip and a plastic 6mm liner under the bag.
- Routing trucks was extremely problematic
- Incinerators were extremely problematic- slow and expensive
- Any challenges that were not expected? EVERYTHING WAS UNEXPECTED!
- Addressing the public and media- communicate clearly and often



NC DEQ HPAI Guidance

- Biosecurity
- Decontamination
- Burial
- Composting
- Incineration
- Transport and Rendering



NC DENR HIGHLY PATHOGENIC AVIAN INFLUENZA RECOMMENDATIONS

ABSTRACT

Many livestock and poultry diseases are highly contagious and can be spread by people through contact with contaminated clothing, vehicles, and equipment. The mass mortalities caused by disease outbreaks can negatively impact both surface and groundwater resources. This guidance is offered to help protect animal health, to prevent the spread of disease, and ultimately, to protect North Carolina's environment and natural resources.

August 11, 2015

Prevention of surface water and groundwater impacts is critical during a HPAI response effort



HPAI Decontamination Basics (DEQ perspective)

- Hundreds of gallons of wastewater may be generated from deconning each vehicle
- Proper siting of decon area will reduce the flow and amount of wastewater entering waters of the state
- Detergents and Disinfectants like Virkon® are very toxic to aquatic life
- Damage to aquatic life is prohibited by state and federal law
- Localized temporary effects on ecosystem vs. the loss of public trust



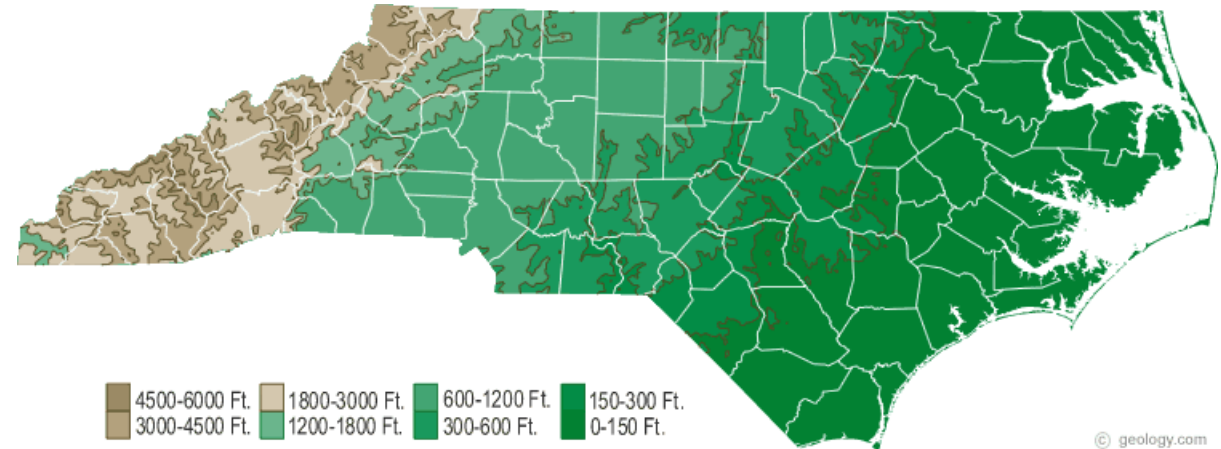
Regulations pertaining to Decon

- Decon activities are deemed permitted by Surface and Non-discharge rules
- Provided that
 - There is a declared emergency
 - State or Federal on scene coordinator oversees
 - DWR is informed prior to discharge
 - No ground or surface water standards are contravened



Considerations for Decon Siting

- Sloping topography
- Good drainage to avoid mud but minimize runoff
- Distance from
 - Infected poultry barns
 - Streams and other waters
 - Water supply wells
 - Other conduits to waters



Reduction of Surface Runoff

- Take steps to reduce soil compaction that will reduce infiltration
- Establish driving routes in & out of decon area
 - Prevent rutting that may create channels for water flow
- Consider Elevating decon area with rock or gravel



Decon Setbacks

- 100 feet from intermittent or perennial waters
- 25 feet from ephemeral streams, waterways and ditches
- 100 feet from wells
- Other considerations:
 - Look for any conduits to waters
 - Block flows wherever possible to maximize time for infiltration
 - Construct temporary basin
 - If suitable site unavailable construct temporary catchment or channel flow away



HPAI Composting- (DEQ perspective)

- Management of mortality
- Eggs, feed, litter, manure
- Proper process mgmt. to prevent odors, vectors, leachate
- Recommended setbacks for:
 1. Property lines (50ft)
 2. Residences (100 ft)
 3. Wells (100ft)
 4. Surface waters (50ft)
 5. Seasonal high water table

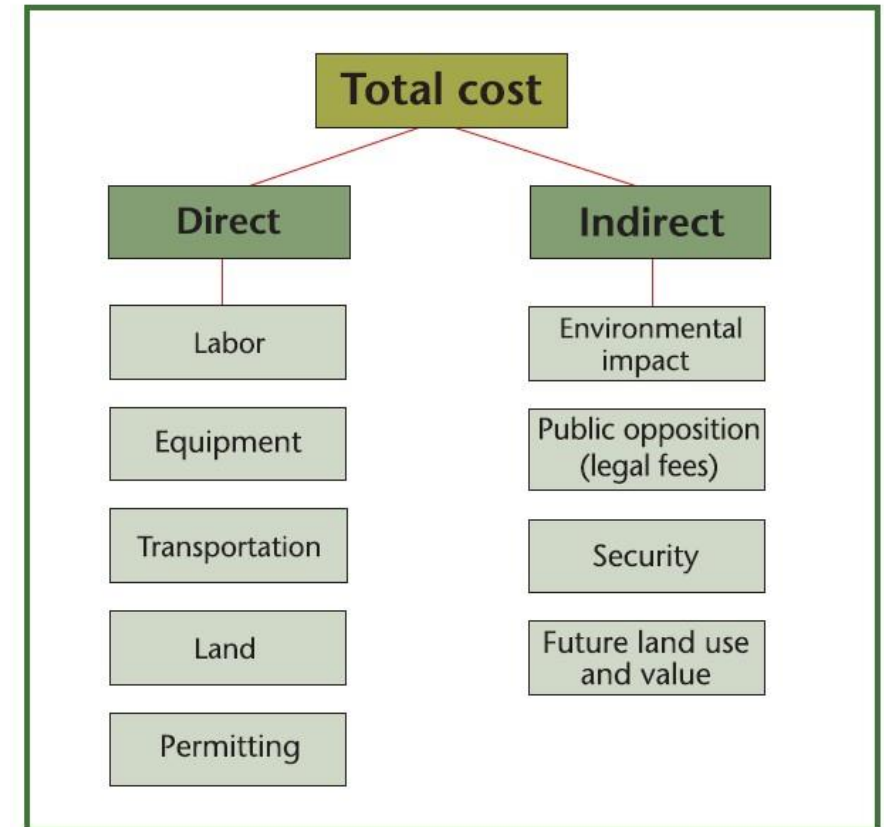


Burial On Farm v. Landfill

- Is burial on farm preferred over a regional landfill?

Yes and No

- For many producers, it's a decision based off timing and cost
- NCDA/DEQ: Fast return to production in a sustainable manner. No long term footprint.



Regional Landfill Disposal Challenges

Transport of mortality to facility

- Infrastructure to transport (trucks, trailers, drivers, etc)
- Cost to transport and dispose
- Landfill disposal criteria:
 - No live virus
 - Carcasses must be transported in disposable bio-bags within lined (6mm) containers.
 - Immediately buried in special area of landfill & cover with 18" of soil
 - Every load must be manifested

Public Perception

- Remember the Control Zone – Monitored & At-risk premises
- Potential PH&E impact with spill
- Fear of live virus moving by your house, school, etc.



DEQ Burial Guidance (On Farm)

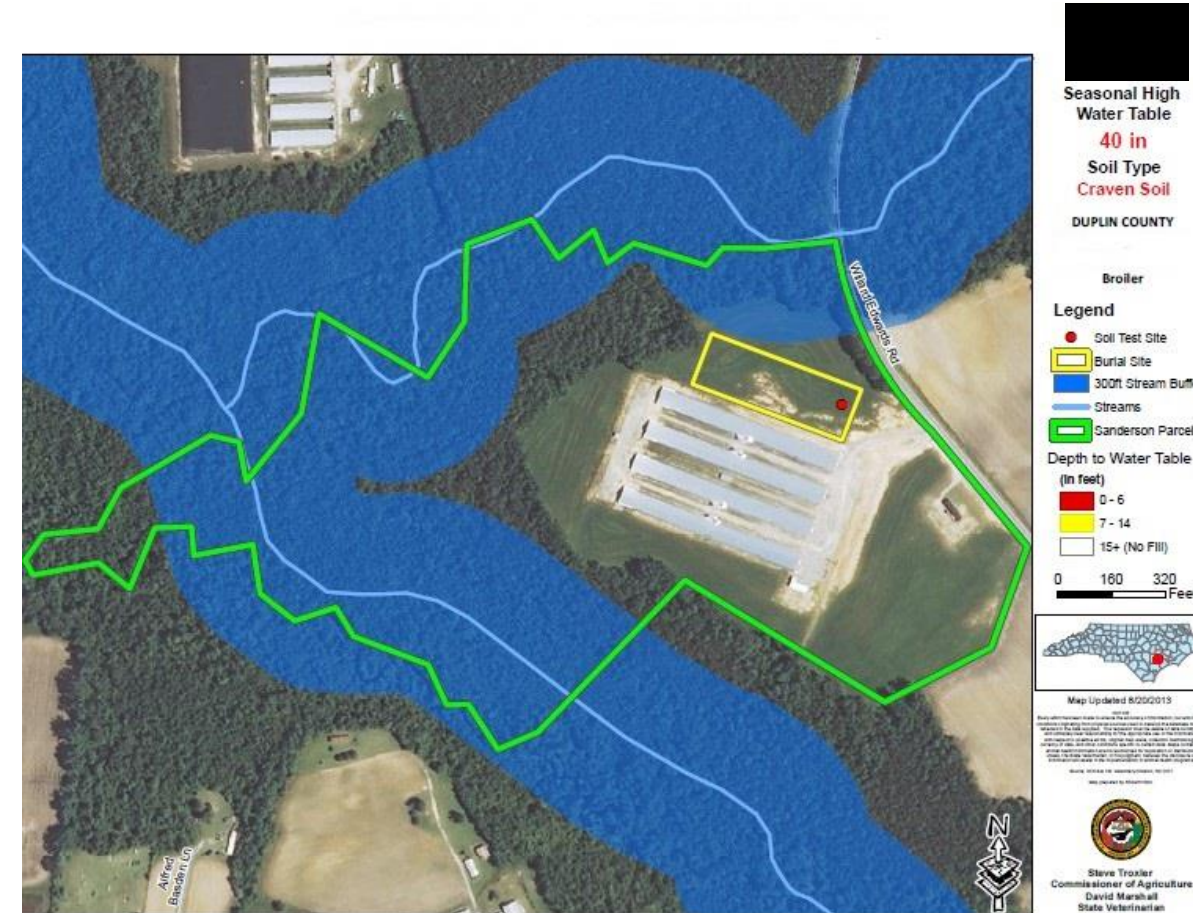
DEQ Burial Guidance = NCDA&CS policy/mandate with limited exceptions

- Potential contaminants- suspended solids, pathogens, nitrates, phosphorous, etc.
- Pre-site Assessment
 - Mandated by NCDA as part of individual farm HPAI plan
 - Must be completed by S&WC staff and/or licensed soil scientist
 - Criteria:
 - 2 SHWT separation options: Soil type (Sandy – 36", Loam – 24", Clay – 18") or 36" minimum



On Farm Burial Buffers

- At least 50 feet from the property boundary unless the owner of the adjacent property is the same person or entity
- 300 feet from any existing stream or public body of water and at no time within the regulated floodway of any waters of the state
- 300 feet from any existing public water supply well
- 100 feet from any other type of existing well
- The burial site cannot include any portion of a waste lagoon or lagoon wall
- Cannot be in tiled area of underdrained field
- Previously approved spray field – field comes out of rotation



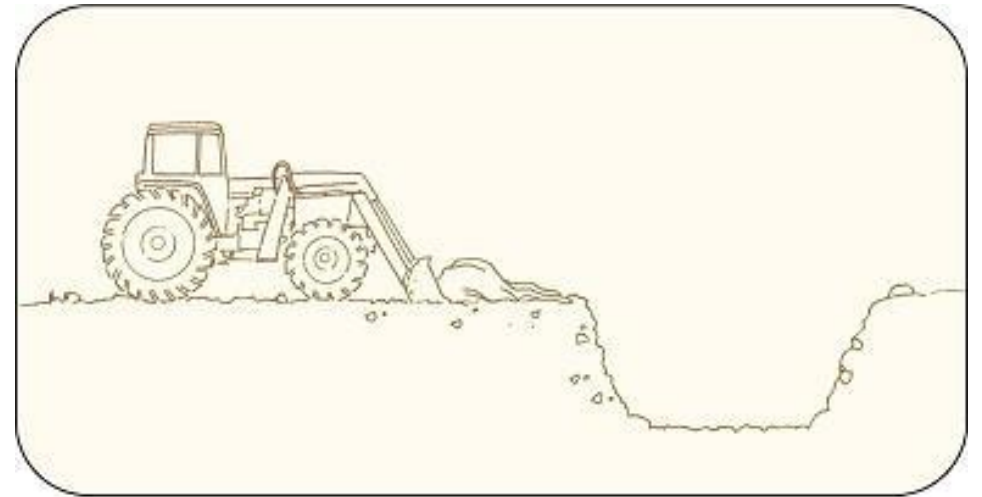
On Farm Burial Continued

- Burial Criteria:
 - Can be trench or open pit
 - Minimum 3' of soil cover
 - Allows burial to be sub and/or above natural ground surface elevation
- Post Burial
 - GPS location
 - Deed recordation (recommended, not required)
- Mass/Collective Burial
 - More than 250k birds
 - May be multi-farm
 - Above criteria plus:
 - 1.25 x 10⁻⁶ cm/sec clay liner – 18" thickness
 - Gas monitoring recommendation of all enclosed structures within 500ft.
 - Post-disposal EA on mass burial (250k birds)



Trench Burial On Site

- Advantages:
 - Limits spread of disease by minimizing infectious material movement and handling
 - Relatively quick and easy, requires few resources
 - Can accommodate a large # of carcasses
 - Equipment is generally widely available
- Disadvantages
 - Lack of suitable sites (hydrology, geology, frozen or wet ground)
 - Potential for groundwater contamination
 - Site may persist for years
 - Disease can still persist
 - Land values
 - Unknown long-term impacts



HPAI Incident Command Structure (DEQ)

56 DEQ Volunteers working under Operations (Disease Mgmt)

- Liaison to Incident Management Team
- Support for composting, burial and decon
 - **SEOC- Specialist**
 - Working with the various group supervisors to project needs within the control zone and to interface with logistics- looking ahead
 - **Data Support**
 - Capturing data from the premises activity for composting, burial and decon
 - **On Farm**
 - Subject experts to assist with details and oversight of composting, burial and decon- as needed



NC DEQ » Important Issues » Avian Influenza - HPAI



Avian Influenza - HPAI

About HPAI

Highly pathogenic avian influenza, commonly known as HPAI or avian flu, is caused by an influenza virus that can infect domestic poultry such as chickens, turkeys, domestic ducks and geese. Although the virus has not yet been detected in North Carolina, DEQ has formed a task force to protect public health and the environment in the event it does reach the state. DEQ is working in concert with the lead state response agency, the N.C. Department of Agriculture and Consumer Services, to prepare for and quickly respond to introductions of influenza in poultry.

[Learn More About HPAI](#)

Information and Resources



News and Updates

DEQ's role in an HPAI/avian flu outbreak; HPAI/avian flu-related press releases, media advisories, and updates



Industry

Access USDA's HPAI/avian flu guidance and DEQ's HPAI recommendations document, along with other key industry resources



Backyard Birds/ Wild Birds

NCDA&CS recommendations and other information for those maintaining backyard birds



N.C. Agriculture and Consumer Services

NCDA&CS is working with the poultry industry and other state and federal agencies to prepare for and respond to introductions of avian influenza



Waste Management

DEQ's Division of Waste Management provides technical advice on disposal by burial or composting, and transportation and rendering



Air and Stormwater

DEQ's Division of Air Quality provides advice on disposal by incineration and recommendations for open burning. The Division of Energy, Mineral and Land Resources provides stormwater management guidance.



Water Resources

DEQ's Division of Water Resources provides technical advice on decontamination, biosecurity, and water supplies.



Contacts/Resources

Key HPAI/avian flu-related contacts and online resources

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North Carolina Department of Environmental Quality
217 West Jones Street, Raleigh, NC 27603
Toll Free: (877) 623-6748

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DEQ HPAI Next Steps

- Continue coordination with NCDA and attendance at relevant training events
- Continue training on the implementation of the DENR guidance and EM protocols
- Ultimate Goal: collaborative statewide effort that quickly eradicates HPAI
- Be prepared, be flexible, adapt and work as a team





Michael E. Scott
DWM Deputy Director
NC DEQ

